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Family Chauliodontidae

Body very long, compressed. Head much compressed, elevated. Mouth large. Teeth in both jaws with excessively long fang like canines. Maxillary enters edge of upper jaw. Series of teeth on each palatine. Small mental barbel. Opercles incomplete. Interopercle rudimentary. Gill openings very wide. No pseudobranchia. Body covered with large, thin, caducous scales or sometimes naked. Photophores present. Dorsal and anal moderate, former inserted before ventrals or far pectorian. Dorsal and ventral

adipose fins present. Anal far posterior. Caudal forked.

Deep sea fishes, rather small in size, noted for their enormous fang like teeth.

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Genus Chauliodus Schneider

Chauliodus Schneider, Syst. Ichth. Block,  
1801, p. 430. Type Chauliodus sloani  
Schneider, monotypic.

Vipera (not Linnaeus) Catesby, Nat. Hist.  
Carolina Fla. Bahamas, vol. 2, 1771, p. 119.

Type Vipera marina Catesby, monotypic.  
(Inadmissible.)

Chauliodes Risso, Hist. Nat. Eur. Mérid.,  
vol. 3, 1826, p. 441. Type Chauliodes  
schniederi Risso, monotypic.

Leptodes Swainson, Nat. Hist. Animals,  
vol. 1, 1838, p. 303;  
vol. 2, 1839, p. 303. Type Chauliodus

sloani Schneider, virtually. Leptodes  
Swainson proposed to replace Chauliodus Schneider.

Body compressed. Head short, bones thinly ossified. Snout very short. Eye moderate. Mouth extremely wide, cleft reaching beyond eye and lower jaw projecting. Premaxillaries with 4 long fang-like canines each side. Mandible with pointed, wide set teeth, anterior exceedingly long. None greatly enlarged teeth received within mouth. Maxillaries with fine teeth. Palatines with single series of small pointed teeth. No teeth on tongue. Opercle very narrow.

Branchiostegals numerous. Dorsal high, anterior. Adipose fin moderate, sometimes fimbriate, opposite short low anal. Caudal and pectorals moderate. Ventral large.

Analysis of species

- a.<sup>1</sup> Dorsal inserted close behind pectoral base; ventral photophores 29 between ventral and anal. dentatus.
- a.<sup>2</sup> Dorsal inserted at first fourth between pectoral and ventral origins; ventral photophores 22 to 27 between ventral and anal. stomias.
- a.<sup>3</sup> Dorsal inserted at first  $\frac{3}{7}$  between pectoral and ventral origins.
- b.<sup>1</sup> Ventral photophores 22 to 25 between ventral and anal origins; depth (of head) 7 to 8. danae.
- b.<sup>2</sup> Ventral photophores 20 to 23 between ventral and anal origins; depth (of head) 6 to 7. barbatus.

Chauliodus dentatus (Garman)

Chauliodus dentatus Garman, Mem.

Mus. Comp. Zool., vol. 24, 1899, p. 273.

Society Islands. — Brauer, Deutsch.

Tiefsee Exped. Valdivia, vol. 15, Tiefsee-Fische,

1906, p. 40 (diagnosis in key). — Fowler,

Mem. Bishop Mus., vol. 10, 1928, p. 34

(type). — Regan and Trewavas, Danish

Dana Exped. Oceanogr. Rep., no. 5, May 30,

1929, p. 31 (reference).

Depth  $7\frac{1}{5}$ ; head  $6\frac{1}{5}$ , width  $1\frac{1}{3}$ .

Snout 4 in head from snout tip; eye

4, equals snout; maxillary extends

well back in head, expansion 2 in

eye, equals head from snout tip;

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upper teeth with 5 long slender fangs each side, second pair largest or slightly longer than eye; 14 compressed lanceolate maxillary teeth, alternating at many small ones; row of few small teeth on each palatine, none on vomer; mandible with pair of large fangs twice eye, second pair  $\frac{1}{3}$  as short, third pair little less  $\frac{1}{2}$  as short, then 3 small pairs and finally 7 short low uniform pointed teeth; interorbital 5 in head from snout tip, depressed.

Scales 64 in median lateral series.

Upper or lateral photophores 19 between pectoral and ventral, 29 between ventral and anal. Lower or ventral series 8 on isthmus, 29 between pectoral and ventral, 14 between ventral and anal.

D. 6, begins close behind pectoral

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base; A. 13; pectoral rays 14 or 15;  
ventral rays 7.

Scarcely uniform dusky brown.  
Length 197 mm. of broken type.

Pacific Ocean.

The above from my reexamination  
of the type, though the fin rays as  
given by Garman, as my counts in  
1928, erroneous.

likely

Chauliodus stomias (Shaw and Hodder)

Esox stomias Shaw and Hodder, Nat.  
Miscellany, vol. 9, 1798, in index vas  
pl. 344 (on Vipera marina Catesby,  
Nat. Hist. Carolina Fla. Bahamas,  
vol. 2, 1771, p. 119, pl. 19, Gibralter). -  
Shaw, General Zool., vol. 5, 1800, p.  
120, pl. III (on Catesby).

Chauliodus sloani Schneider, Syst.

Ichth. Block, 1801, p. 430. Atlantic  
(in Vipera marina Catesby, Hist. Nat. Carolina,  
Fla. Bahamas, vol. 2, 1771, p. 119, pl. 19,  
Gibraltar). — Valenciennes, Hist. Nat.  
Poissons, vol. 22, 1849, p. 285, pl. 647 (Sicily).

— Jordan and Gibert, Bull. U. S. Nat. Mus.,  
no. 16, 1882, p. 285 (compiled). — Vaillant,  
Exped. Sci. Travailleur et Talisman,  
Poissons, 1888, p. 102 (coast of Morocco,  
1123 meters). — Goode and Bean, Oceanic  
Ichth., 1895, p. 96 (Georges Bank; Old  
Bahama Channel, 500 fathoms; N.  $13^{\circ}$  to  
 $39^{\circ}$  W.  $62^{\circ}$  to  $87^{\circ}$ , 435 to 2069 fathoms). —  
Garman, Mem. Mus. Comp. Zool., vol.

24, 1899, p. 274 (diagnosis). — Regan,  
Trans. Linn. Soc. London, series 2, vol.  
12, Zool. No. 14, 1908, p. 218 (north of  
Peros Atoll to 200 fathoms). — Fowler,  
Proc. Acad. Nat. Sci. Philadelphia, 1911  
(1912), p. 560 (Italy).

Chauliodus sloani Günther, Cat.  
Fishes Brit. Mus., vol. 5, 1865,  
p. 392 (type; Messina); Rep.  
Voy. Challenger, vol. 22, 1887, p.  
179 (south of New Guinea, 800  
fathoms; north of New Guinea  
2000 fathoms; south of Japan,  
565 fathoms; mid Atlantic  
2500 fathoms; north east of  
Bermuda 2575 fathoms). —  
Alcock, Ann. Mag.

Asiatic Soc. Bengal, vol. 65, pt. 2,  
1896, p. 334 (reference).  
Thamnotomias atrox Goode and  
Bean, Oceanic Ichth., 1895, pl. 37,  
fig. 141 (copied).

Nat. Hist., ser. 6, vol. 4, 1889, p. 399 (Bay of Bengal and Gulf of Manaar, in 597 to 1590 fathoms); ser. 6, vol. 8, 1891, p. 127 (Laccadive Sea, Andaman Sea, Bay of Bengal); ser. 6, vol. 10, 1892, p. 355 (Laccadive Sea). — Goode and Bean, Oceanic Ichth., 1895, pl. 31, fig. 115. —

Alcock, Journ. Asiatic Soc. Bengal, vol. 65, pt. 2, 1896, p. 332 (Bay of Bengal, in 1590 fathoms; Gulf of Manaar, 597 fathoms; Laccadive Sea); Cat. Deep Sea Fish. Indian Mus., 1899, p. 144 (above materials).

in Germany,

Chauliodus sloanei Braner, Deutsch.  
 Tiefsee Exped. Valdivia, vol. 15, Tiefsee-  
 Fische, 1906, p. 40, text figs. 7-9 (~~at 2000 meters~~  
 Guinea, ~~south~~  
~~at 2000 meters~~; south of Cocos Keeling;  
 off Sumatra; Bengal Bay; south of Ceylon;  
 between Seychelles and Zanzibar; Gulf of  
 Aden; 594 to 2200 meters). — Jugmayer, Rés.  
 Camp. Sci. Monaco, vol. 35, 1911, p. 63 (N. 27°  
 to 43° W. 7° to 31°, 500 to 5000 meters). —

Murray and Hjort, Depths of the Ocean, 1912,  
 p. 611, fig. 454 (Plymouth to Gibraltar, thence  
 to Gran Canaria, thence to Cape Bojador,  
 Gran Canaria to Fayal, Azores to  
 Newfoundland, 2000 to 5035 meters). —

Pappenheim, Deutsch. Südpolar Exped.,

vol. 15, pt. 2, 1914, p. 167 (N.  $24^{\circ}41'W.$   
 $32^{\circ}21'$ ; 20 meters, southwest of Azores).

— Roule, Rév. Camp. Sci. Monaco, vol.  
 52, 1919, p. 26 (N.  $43^{\circ}21'E.$ ,  $7^{\circ}18'15''$ ; 1838  
 meters; N.  $36^{\circ}46'W.$ ,  $26^{\circ}41'$ ; 3250 meters,  
 Azores). — Barnard, Ann. South African  
 Mus., vol. 21, pt. 1, June 1925, p. 141 (off  
 Cape Point, East London and Durban, 300 to  
 790 fathoms). — Regan and Trewavas,  
 Danish Dana Exped. Oceanogr. Rep., no. 5,  
 May 30, 1929, p. 32, fig. 24 (Mediterranean,  
 Atlantic, Caribbean Sea, Japan,  
 ?Australia). — Hornマン, Discovery Rep.,  
 vol. 2, 1930, p. 308 (S.  $0^{\circ}$  to  $33^{\circ}$  and N.  $6^{\circ}$  to  $13^{\circ}$   
 E.  $5^{\circ}$  to  $16^{\circ}$  to W.  $00^{\circ}$  to  $18^{\circ}$ ; 125 to 1000 meters).  
Leptodes Sloanii Swainson, Nat. Hist. Animals,  
 vol. 2, 1839, p. 298 (reference).

Chauliodus setinotus Schneider, Syst.

Ichth. Block, 1801, pl. 85. — Bonaparte,

↑ Iconogr. Fauna Italia, Pesci, vol. 3,  
pt. 1, fasc. 30, 1841, no pagination, pl.,  
fig. 2 (Italy).

Stomias schneiderei Cuvier, Règne

Animal, Poiss., Ed. Ill., 1839, p. 97

(reference to plate).

Stomias boa (not Schneider) Cuvier,

Règne Animal, Poiss., Ed. Ill., 1839,

pl. 97 (error).

Leptodes sicculus Swainson, Nat. Hist.

Animals, vol. 1, 1838, p. 304, fig. 65.

Isthmus of Messina.

Chauliodus setinotus Schneider, Syst.

Ichth. Block, 1801, pl. 85. — Bonaparte,

Chauliodes schneideri Risso, Hist. Nat.

Eur. Mérid., vol. 3, 1826, p. 442, pl.

14, fig. 37. Nice.

Stomias schneideri Cuvier, Règne

Animal, Poiss., Ed. Ill., 1839, p. 97

(reference to plate).

{ Stomias boa (not Schneider) Cuvier,

Règne Animal, Poiss., Ed. Ill., 1839,

pl. 97 (error).

Leptodes siculus Swainson, Nat. Hist.

Animals, vol. 1, 1838, p. 304, fig. 65.

Isthmus of Messina.

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Chauliodus macouni Bean

Chauliodus macouni Bean, Proc. U. S.

Nat. Mus., vol. 13, 1890, p. 44. N.  $51^{\circ}23'$

W.  $130^{\circ}34'$ , 876 fathoms, off Cape St. James,  
Queen Charlotte Islands. (L. Goodo) and  
— Gilbert, Rep. U. S. Fish Comm., pt. 19,  
1893 (1895), p. 465 (off California, 280 to  
620 fathoms).

— Brauer, Deutsch. Tiefsee Exped. Valdivia,  
vol. 15, Tiefsee-Fische, 1906, p. 40 (diagnosis  
in key). — Gilbert, Proc. U. S. Nat. Mus.,  
vol. 48, 1915, p. 321 (off California, 645  
to 2259 fathoms).

Chauliodus macouni Garman, Mem. Mus.  
Comp. Zool., vol. 24, 1899, p. 274 (diagnosis).

Chauliodus macouni Bean.

Chauliodus macouni Bean, Proc. U. S.

Nat. Mus., vol. 13, 1890, p. 44. N.  $51^{\circ}23'$

W.  $130^{\circ}34'$ ; 876 fathoms, off Cape St. James,

Queen Charlotte Islands. — Goode and

Bean, Oceanic Ichth., 1895, p. 513 (reference).

— Jordan and Evermann, Bull. U. S. Nat.

Mus., no. 47, pt. 1, 1896, p. 585 (compiled).

— Brauer, Deutsch. Tiefsee Exped. Valdivia,  
vol. 15, Tiefsee-Fische, 1906, p. 40 (diagnosis  
in key). — Gilbert, Proc. U. S. Nat. Mus.,  
vol. 48, 1915, p. 321 (off California, 645  
to 2259 fathoms).

Chauliodus macouni Garman, Mem. Mus.  
Comp. Zool., vol. 24, 1899, p. 274 (diagnosis).

Chauliodus pammelas Alcock

Chauliodus pammelas Alcock, Ann.

Mag. Nat. Hist., ser. 6, vol. 10, 1892, p. 355.

Laccadive Sea, h. Lat.  $8^{\circ}49' E$ . Long.

$73^{\circ}18'45''$ , in 1370 fathoms. — Goode and

Bean, Oceanic Ichth., 1895, p. 96 (reference).

— Alcock, Journ. Asiatic Soc. Bengal, vol. 65, pt. 2, 1896, p. 332 (reference); Cat.

Deep Sea Fishes Indian Mus., 1899, p.

— Garman, Mem. Mus. Comp. Zool., vol. 24,

1899, p. 274 (diagnosis). — Alcock, Illustr.

Zool. Investigator, Fishes, pt. 7, 1900, pl.

— Pappenheim, Deutsch. Südpolar Exped., vol. 15, pt. 2, 1914, p. 167 (no locality).

Tiden). — Regan and Trewavas, Danesh-

Chauliodus pammelas W. M. Wood

Chauliodus pammelas Lubbock, Ann.

Nat. Hist., ser. 6, vol. 10, 1892, p.  
355. Laccadive Sea, N. Lat.  $8^{\circ}49' E.$  Long.

$73^{\circ}18'45''$ , in 1370 fathoms. — Goode and

Bean, Oceanic Ichth., 1895, p. 96 (reference).  
—

— Lubbock, Journ. Asiatic Soc. Bengal,  
vol. 65, pt. 2, 1896, p. 332 (reference); Cat.

Deep Sea Fishes Indian Mus., 1899, p.

145 (Arabian Sea, in the neighbourhood  
of Minniboy, in 1370 fathoms). —

Zool. Investigator, Fishes, pt. 7, 1900, pl.

30, fig. 4. — Brauer, Deutsch. Tiefsee  
Exped. Valdivia, vol. 15, Tiefsee-Fische, 1906,  
pt. 2, p. 42 (N.  $13^{\circ}2'8''$  E.  $46^{\circ}41'6''$ , 1200 meters, Gulf of  
Eden). — Regan and Trewavas, Danish

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7. (max)

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Dana Exped. Oceanogr. Rep., No. 5,  
May 30, 1929, p. 31 (reference).

Chauliodus emmelas Jordan and Starks

Chauliodus emmelas Jordan and Starks,  
Bull. U. S. Fish Comm., vol. 22, 1902 (1904),  
p. 579, pl. 1, fig. 2. Sagami Bay in 120  
to 265 fathoms, Japan.

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Chauliodus dannevigi McCulloch  
? Chauliodus dannevigi McCulloch,  
Biol. Results Endeavour, vol. 4, pt. 4,  
det. 31, 1916, p. 179, pl. 3. Off Cape  
Everard, Victoria, in 180 to 240 fathoms.

Depth  $6\frac{1}{2}$  to 8; head 5 to 7, width  $2\frac{1}{2}$  to 3. Snout  $3\frac{1}{5}$  to  $4\frac{1}{4}$  in head from snout tip; eye  $3\frac{1}{5}$  to  $4\frac{4}{5}$ , little greater than snout in young to  $1\frac{1}{5}$  with age, little greater than interorbital in young to  $1\frac{1}{3}$  with age; maxillary reaches preopercle ridge; 1 to  $1\frac{1}{10}$  in head from snout tip; mandibles with (4 above and 5 below) pairs of large canines (sometimes an extra tooth may appear so tooth is double), first enormous, slender, curved slightly back and when mouth closes extend up along each side of snout well above upper eye edge; upper teeth also project along front of

mandible or outside lower jaw; each palatine with 7 short straight conic teeth; interorbital  $3\frac{1}{4}$  to  $4\frac{1}{3}$ , abruptly declivous behind though concave medially. Gill rakers minute obsolete denticles or not developed; gill filaments equal eye.

Scales (pockets) 49 to 52 in median lateral series; 7 transversely at dorsal origin. Scales very caducous, all fallen.

Single crescentic series of 13 or 14 small infraorbital photophores, first largest and begins in small dark pigment blotch opposite front eye edge, entire series close to eye and otherwise

subequal. Below and directly opposite eye center, close to maxillary edge, rather large conspicuous photophore.

Maxillary, cheek and opercles with other small photophores. Moderately large photophore between each

branchiostegal ray. Photophores in upper ventral row from isthmus to pectoral 10 or 11, from pectoral to ventral 19 or 20, from ventral to anal 23 to 25, from anal to caudal 10. Abdominal photophores in double median row, preventral 19, postventral 23 to 26, many other minute photophores scattered over rest of body.

D. 6 or 7, first ray long filament extended beyond ventral origin or  $2\frac{1}{2}$  to  $4\frac{1}{4}$  in combined head and body to caudal base; ventral  $4\frac{4}{5}$  to  $7\frac{1}{4}$ ; adipose fin  $1\frac{1}{5}$  to  $1\frac{1}{2}$  in total head length, origin before anal fin origin; A. II, 10, opposite adipose fin, first branched ray 2 to  $2\frac{1}{10}$ ; caudal  $1\frac{1}{3}$  to  $1\frac{1}{2}$ , forked; least depth of caudal peduncle 5 to  $5\frac{1}{4}$ ; pectoral  $1\frac{1}{4}$  to  $1\frac{2}{5}$ .

Variably pale to dark or dusky brown, with silvery to leaden gray tinge in some specimens, especially on belly. Iris silvery or gray. Fins pale to whitish.

I cannot find that the nominal  
Chauliodus macouni Bean is distinct.  
The distinctions set forth by Jordan  
and Evermann as the smaller head for  
the Atlantic form (sloanei) as 7 and 6  
for the Pacific form (macouni) surely  
do not hold.

Chauliodus lemmeri is only known  
from the type. Though described as  
more slender than C. stomias its  
variation in this respect, both as to the  
head and depth are equalled in my  
series of C. stomias. The scales are  
given "about 60" though my count of the  
scale pockets show them nearer 54.

2101. D. 5216. Anima Sola Island,  
N.  $44^{\circ}$  W., 29.50 miles (N.  $12^{\circ}52' E.$ ,  $123^{\circ}23'30''$ ), between Burias and Luzon.

In 215 fathoms. April 22, 1908. Length  
182 mm.

3481. D. 5528. Balicasag Island,  
(C.), N.  $15^{\circ}$  E. 5.8 miles (N.  $9^{\circ}24'45'' E.$ ,  
 $123^{\circ}39'15''$ ), between Siquijor and  
Bohol. In 439 fathoms. August 11, 1909.  
Length 130 mm.

3525. D. 5424. Cagayan Island (S.),  
S.  $11^{\circ}$  W. 3.4 miles (N.  $9^{\circ}37'5'' E.$ ,  $121^{\circ}12'37''$ ),  
Jolo Sea. In 340 fathoms. March 31, 1909.  
Length 168 mm.

4315. D. 5671. Chenoki Point, S.  $31^{\circ}$  E.,  
42.5 miles (N.  $1^{\circ}5' E.$ ,  $118^{\circ}56'$ ), Macassar  
Strait. In 960 fathoms. December 30,  
1909. Length 143 mm.

4000. D. 5365. Cape Santiago light,  
 N.  $73^{\circ}$  W., 6.7 miles (N.  $13^{\circ}44'24''$  E.  $120^{\circ}45'30''$ ),  
 Balayan Bay, Luzon. In 214 fathoms.

February 22, 1909. Length 168 mm.

↑ D. 5300. China Sea (N.  $20^{\circ}31'$  E.  $115^{\circ}49'$ ),  
 vicinity southern Luzon. In 265 fathoms.  
 August 8, 1908. Length 130 mm.

August 1, 1909. Length 182 mm.

3151. D. 5450. East Point (Batan Island),  
 S.  $36^{\circ}$  E., 9.2 miles (N.  $13^{\circ}23'15''$  E.  $124^{\circ}00'30''$ ),  
 east coast of Luzon. In 408 fathoms.  
 June 4, 1909. Length 235 mm.

3365 and 3366. D. 5366. Escarceo  
 light, S.  $5^{\circ}$  E., 7.7 miles (N.  $13^{\circ}39'$  E.  $120^{\circ}58'30''$ ),  
 Batangas Bay, Luzon. In 240 fathoms.  
 February 22, 1909. Length 135 to 155 mm.  
 2 examples.

4000. D. 5365. Cape Santiago Light,  
 N.  $73^{\circ}$  W., 6.7 miles (N.  $13^{\circ}44'24''$  E.  $120^{\circ}45'30''$ ),  
 Balayan Bay, Luzon. In 214 fathoms.

February 22, 1909. Length 168 mm.

2123. D. 5492. Dinata Point (W.),  
 S.  $45^{\circ}$  W., 15.2 miles (N.  $9^{\circ}12'45''$  E.  $125^{\circ}20'$ ),  
 between Leyte and Mindanao. In 735 fathoms.

August 1, 1909. Length 182 mm.

3151. D. 5450. East Point (Batan Island),  
 S.  $36^{\circ}$  E., 9.2 miles (N.  $13^{\circ}23'15''$  E.  $124^{\circ}00'30''$ ),  
 east coast of Luzon. In 408 fathoms.  
 June 4, 1909. Length 235 mm.

3365 and 3366. D. 5366. Escarceo  
 light, S.  $5^{\circ}$  E., 7.7 miles (N.  $13^{\circ}39'15''$  E.  $120^{\circ}58'30''$ ),  
 Batangas Bay, Luzon. In 240 fathoms.  
 February 22, 1909. Length 135 to 155 mm.  
 2 examples.

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3268. D. 5636. Gomono Island (E.),  
N.  $46^{\circ}$  W., 6 miles (S.  $1^{\circ}55' E.$   $127^{\circ}42'30''$ ),  
Pitt Passage. In  $126\frac{1}{2}$  fathoms.  
December 30, 1909. Length 183 mm.

2734. D. 5201. Limasawa Island (E.),  
S.  $1^{\circ} E.$ , 14.80 miles (N.  $10^{\circ}10' E.$   $125^{\circ}4'15''$ ),  
Sogod Bay, southern Leyte. In 554 fathoms.  
April 10, 1908. Length 120 mm.

4284. D. 5203. Limasawa Island (S.),  
S.  $38^{\circ} W.$ , 5.50 miles (N.  $9^{\circ}58' E.$   $125^{\circ}7'40''$ ).  
In 775 fathoms. April 10, 1908. Length 149 mm.

1950. D. 5233. Limasawa Island (S.),  
S.  $70^{\circ} E.$  19.50 miles (N.  $10^{\circ}00'22'' E.$   $124^{\circ}45'06''$ ),  
between Bohol and Leyte. May 7, 1908.  
Length 213 mm.

5690. D.5246. Luban Island (N.),  
 S.  $58^{\circ}$  W., 4.6 miles (N.  $6^{\circ} 29' 15''$  E.  $126^{\circ} 18' 45''$ ), Pacific Ocean, east coast of Mindanao.

May 15, 1908. Length 126 mm.  
 → " "

↑ D.5589. Mabul Island (NW.) N.  $3^{\circ}$  W., 2.8 miles (N.  $4^{\circ} 12' 10''$  E.  $118^{\circ} 38' 8''$ ), Siboko Bay Borneo and vicinity. In 200 fathoms. September 29, 1909. Length 140 mm.

→ fathoms. September 29, 1909. Length 145 mm.

↑ <sup>4431.</sup> D.5591. Mabul Island (NW.) N.  $6^{\circ}$  W., 3.1 miles (N.  $4^{\circ} 11' 48''$  E.  $118^{\circ} 38' 20''$ ). In 200 fathoms. September 29, 1909. Length 115 mm. Swallowed Mystophum spinosus 50 mm. long, which taken from stomach intact.

D.5620. Makyan Island (S.) S.,  $44^{\circ}$  E., 7 miles (N.  $0^{\circ} 21' 30''$  E.  $127^{\circ} 16' 45''$ ), Molucca Passage. In 358 fathoms. November 28, 1909. Length 125 mm.

In 288 fathoms. November 29, 1909.  
 Length 148 mm.

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5690. D. 5246. Luban Island (N.),  
S.  $58^{\circ}$  W., 4.6 miles (N.  $6^{\circ} 29' 15''$  E.  $126^{\circ} 18' 45''$ ), Pacific Ocean, east coast of Mindanao.

→ May 15, 1908. Length 126 mm.

1628. D. 5590. Mabul Island (NW.),  
N.  $22^{\circ}$  W., 4.3 miles (N.  $4^{\circ} 10' 50''$  E.  $118^{\circ} 39' 35''$ ),  
Sibuko Bay, Borneo, and vicinity. In 310  
fathoms. September 29, 1909. Length 145 mm.

→ 3858. D. 5621. Makyan Island (S.), N.  
 $54^{\circ}$  W., 3 miles (N.  $0^{\circ} 15'$  E.  $127^{\circ} 24' 35''$ ),  
between Gillobo and Makyan. In 298 fathoms.  
Length 160 mm.

4104. D. 5624. Makyan Island (S.), N.  
 $57^{\circ}$  W., 8.9 miles (N.  $0^{\circ} 12' 15''$  E.  $127^{\circ} 29' 30''$ ).

In 288 fathoms. November 29, 1909.  
Length 148 mm.

1385 and 1386. D. 5219. Mompog  
Island (N.E.), N.  $35^{\circ}30'W.$ , 12.25 miles  
(N.  $13^{\circ}21'E.$ ,  $122^{\circ}18'45''$ ), between Marinduque  
and Luzon. In 530 fathoms. April 23,  
1908. Length 132 to 208 mm. 2 examples.

2578. D. 5379. Mompog Island (E.),  
N.  $30^{\circ}W.$  37 miles (N.  $12^{\circ}59'15"E.$ ,  $122^{\circ}30'40''$ ),  
Marinduque and vicinity. In 920 fathoms.  
March 4, 1909. Length 136 mm.

4472 and 4473. D. 5214. Palanog  
light, Masbate, S.  $17^{\circ}W.$ , 2.60 miles (N.  $12^{\circ}$   
 $25'18"E.$ ,  $123^{\circ}37'15''$ ). In 218 fathoms.

April 21, 1908. Length 91 to 174 mm.  
2 examples.

1513. D. 5189. Pescador Island,  
 N.  $72^{\circ}$  E., 3.30 miles (N.  $9^{\circ}56'30''$  E.  $123^{\circ}15'$ ), Tanon Strait, east coast of Negros.

In 300 fathoms. April 1, 1908. Length  
 171 mm.

† D. 5227. Point Urigon, S.  $44^{\circ}$  E., 18.30  
 miles (N.  $12^{\circ}53'45''$  E. (121°52'30''), east of  
 Mindoro. In 322 fathoms. May 5, 1908.  
 Length 96 to 151 mm. 8 examples. These show a  
 distinct variation in the size of the eye, a sex  
 distinction noticed by Brauer

7648. D. 5349. Point Tabonan, N.  $85^{\circ}$   
 E., 45.2 miles (N.  $10^{\circ}54'$  E.  $118^{\circ}26'20''$ ),  
 Palawan Passage. In 730 fathoms.  
 December 27, 1908. Length 232 mm.

5779. D. 5524. Point Tagolo Light,  
 S.  $34^{\circ}$  W., 17 miles (N.  $8^{\circ}58'7''$  E.  $123^{\circ}32'45''$ ),  
 northern Mindanao and vicinity. In 360  
 fathoms. August 10, 1909. Length 66 mm.

1513. D. 5189. Pescador Island,  
 N.  $72^{\circ}$  E., 3.30 miles (N.  $9^{\circ}56'30''$  E.  $123^{\circ}15'$ ), Tanon Strait, east coast of Negros.

In 300 fathoms. April 1, 1908. Length  
 $\rightarrow$  171 mm.

D. 5263. Point Origan, N.  $85^{\circ}$  E., 28.3  
 miles (N.  $12^{\circ}38'30''$  E.  $121^{\circ}37'30''$ ), off  
 eastern Mindoro. June 4, 1908. Length  
 71 mm.

7648. D. 5349. Point Tabonan, N.  $85^{\circ}$   
 E., 45.2 miles (N.  $10^{\circ}54'50''$  E.  $118^{\circ}26'20''$ ),  
 Palawan Passage. In 730 fathoms.  
 December 27, 1908. Length 232 mm.

5779. D. 5524. Point Tagolo Light,  
 S.  $34^{\circ}$  W., 17 miles (N.  $8^{\circ}58'7''$  E.  $123^{\circ}32'45''$ ),  
 northern Mindanao and vicinity. In 360  
 fathoms. August 10, 1909. Length 66 mm.

625

1443. D. 5405. Ponson Island (N.),  
S.  $86^{\circ}$  E., 8.5 miles (N.  $10^{\circ} 49' 20''$  E.  $124^{\circ} 24' 23''$ ), Lupon Bay, Leyte and vicinity.

In 262 fathoms. March 17, 1909. Length 188 mm.

3370 to 3372. D. 5406. Ponson Island (N.), S.  $88^{\circ}$  E. 10.2 miles (N.  $10^{\circ} 49' 3''$  E.  $124^{\circ} 22' 30''$ ). In 298 fathoms. March 17, 1909. Length 140 to 215 mm. 3 examples.

D. 5586. Sipadan Island (N.) West, 9.4 miles (N.  $4^{\circ} 6' 50''$  E.  $118^{\circ} 47' 20''$ ), Sibulao Bay, Borneo and vicinity. In 347 fathoms. September 28, 1909. Length 183 mm.

↓ → —————— sp. name not known, 1701. reagon 110 mm.

1847 and 1848. D. 5114. Vombrero Island N.  $36^{\circ}$  E., 7.2 miles (N.  $13^{\circ} 36' 11''$  E.  $120^{\circ} 45' 26''$ ), Balayan Bay and Verde Island Passage. In 340 fathoms. January 20, 1908. Length 138 to 145 mm.

685

1443. D. 5405. Ponson Island (N.),  
S.  $86^{\circ}$  E., 8.5 miles (N.  $10^{\circ} 49' 20''$  E.  $124^{\circ} 24' 23''$ ), Lupon Bay, Leyte and vicinity.

In 262 fathoms. March 17, 1909. Length  
188 mm.

3370 to 3372. D. 5406. Ponson Island  
(N.), S.  $88^{\circ}$  E. 10.2 miles (N.  $10^{\circ} 49' 3''$  E.  $124^{\circ} 22' 30''$ ). In 298 fathoms. March 17, 1909.  
Length 140 to 215 mm. 3 examples.

4539. D. 5583. Si Amil Island  
(N.) N.  $88^{\circ}$  W. 3.2 miles (N.  $4^{\circ} 19'$  E.  $118^{\circ} 56' 20''$ ),  
Sibuko Bay, Borneo and vicinity. In 447  
fathoms. September 27, 1909. Length 148 mm.

1847 and 1848. D. 5114. Vombrero Island  
N.  $36^{\circ}$  E., 7.2 miles (N.  $13^{\circ} 36' 11''$  E.  $120^{\circ} 45' 26''$ ),  
Balayan Bay and Verde Island Passage.  
In 340 fathoms. January 20, 1908.  
Length 130 to 145 mm.

→

626

↑ D. 5120. Sombrero Island, S.  $79^{\circ}30' E.$ ,  
19.2 miles (N.  $13^{\circ}45'30'' E.$ ,  $120^{\circ}30'15''$ ),  
Balayan Bay and Verde Island Passage.  
In 393 fathoms. January 21, 1908. Length  
64 to 154 mm. 17 examples.

D. 5287. Sombrero Island, N.  $68^{\circ} E.$ , 11.25  
miles (N.  $13^{\circ}37'40'' E.$ ,  $120^{\circ}39'$ ), China Sea,  
vicinity southern Luzon. In 379 fathoms.  
July 20, 1908. Length 39 to 142 mm.  
5 examples.

Marinduque Island and vicinity. In 181  
fathoms. February 23, 1909. Length 152 to 172 mm.

3126. D. 5373. Tayabas Light (outer),  
N.  $20^{\circ} E.$ , 15 miles (N.  $13^{\circ}40' E.$ ,  $121^{\circ}31'10''$ ). In  
338 fathoms. March 2, 1909. Length 172 mm.

One example, no data. Length 155 mm.

→ 2577. D. 5399. Yanguingui Island.  
Light, N.  $70^{\circ}$  W., 22.8 miles (N.  $11^{\circ} 21' 45''$  E.  $124^{\circ} 05'$ ), north of Cebu. In 32  
fathoms. March 16, 1909. Length 213 mm.  
and 4505.

4504, D. 5368. Tayabas Light (outer),  
N.  $32^{\circ}$  W., 21.8 miles (N.  $13^{\circ} 35' 30''$  E.  $121^{\circ} 48'$ ),  
Marinduque Island and vicinity. In 181  
fathoms. February 23, 1909. Length 152 to 172 mm.

3126. D. 5373. Tayabas Light (outer),  
N.  $20^{\circ}$  E., 15 miles (N.  $13^{\circ} 40'$  E.  $121^{\circ} 31' 10''$ ). In  
338 fathoms. March 2, 1909. Length 172 mm.  
One example, no data. Length 155 mm.

23420 U.S.N.M. N. $44^{\circ}30'$  W. $57^{\circ}10'$ ,  
Banquereau Bank. In 250 fathoms.

March 5, 1879. Schooner "Marion". Length  
320 mm. In poor preservation.

26165 U.S.N.M.

Newport, Rhode Island. Fish Hawk  
Station 892. Length 97 mm. Very poor.

27302 U.S.N.M. East coast of U.S.  
Found in lot of samples of bottom  
dredging. Dry mandible 25 mm. long.

32660 U.S.N.M. N. $37^{\circ}46'30''$  W. $74^{\circ}$

Albatross haul 1. March 22, 1883. Length  
136 mm.

35538 U.S.N.M. N. $39^{\circ}38'$  W. $71^{\circ}39'45''$ .  
Albatross Station 2202. August 19, 1884.  
Length 268 mm.

35556 U.S.N.M. N. $39^{\circ}30'30''$  W. $71^{\circ}44'30''$ .  
Albatross Station 2204. August 19, 1884.  
Length 210 mm.

787

38207 U.S.N.M.

Albatross Station 2729.

Length 195 mm., from mutilated head.

1 example (with 39249 U.S.N.M.).

Albatross Station 2738. Length 145? mm.  
Very poor.

40069 U.S.N.M. Messina. Royal Zool.  
Mus. Florence. September 1881. Length  
59 to 200 mm. 4 examples.

1 example (with 54221 U.S.N.M.).

N.  $52^{\circ} 39' 36''$  W.  $132^{\circ} 38'$ : In 1588 fathoms.  
Albatross Station 3342. September 3, 1890.  
Length 168 mm.

74332 U.S.N.M.

Albatross Station 2549. Length 198 mm.  
As Stomias ferox.

809

83867 U.S.N.M.

Albatross Station 2667. May 5, 1886.

Length 74 mm.

91400 U.S.N.M.

Albatross Station 20023. In 1100 meters.

November 21, 1919. Length 133 mm.

92118 U.S.N.M. N.  $39^{\circ}$  W.  $71^{\circ}$ , from  
stomach of sword fish taken in gully  
between Brown's and Georges Banks.  
July 15-August 5, 1931. Schooner "Eleanor".  
Capt. Thomas Brigham. Head 40 mm.

The following as Chauliodus macouni:

45372 U.S.N.M. N.  $51^{\circ} 23'$  W.  $130^{\circ} 34'$ .

In 876 fathoms. Albatross Station 2860.  
August 31, 1888. Length 91 mm. Type.

46517 U.S.N.M. N.  $47^{\circ} 29' 30''$  W.  $125^{\circ} 43'$ .

Albatross Station 3070. June 2, 1889. Length  
192 mm.

48612 U.S.N.M. N. $55^{\circ}26'W.$  155° 26'.

In 695 fathoms. Albatross Station 3340.

August 29, 1890. Length 75 mm.

53945 U.S.N.M. N. $51^{\circ}23'W.$  130° 34';  
Alaska. In 876 fathoms. Albatross  
Station 2860. August 31, 1888. Length 170  
mm. Very poor.

53946 U.S.N.M. N. $37^{\circ}28'W.$  123°. In  
276 fathoms. Albatross Station 3479.  
April 27, 1893. Length 95 mm.

54622 U.S.N.M. N. $43^{\circ}46'W.$  124° 57'.

In 277 fathoms. Albatross Station 2890.  
October 19, 1888. Length 150 mm.

60125 U.S.N.M. near Funter Bay,  
Lynn Canal, Alaska. In 350 fathoms.  
Albatross Station 4257. July 23, 1903.  
Alaska Salmon Investigations. Length 92 mm.

60396 U.S.N.M. Haka Bay, Behm  
Canal, south east Alaska. In 113 to 82 fathoms.  
Albatross Station 4231. July 7, 1903.  
Alaska Salmon Investigations. Length 100 mm.

60607 U.S.N.M. Near Funter Bay,  
Lynn Canal. Albatross Station 4258.

In 300 to 313 fathoms. July 23, 1903.

Alaska Salmon Investigations. Length  
50 mm. to body broken off ends of  
depressed ventrals.

60797 U.S.N.M. Near Yes Bay, Behm  
Canal. In 130 to 193 fathoms. Albatross  
Station 4235. July 8, 1903. Alaska Salmon  
Investigations. Length 158 mm.

74719 U.S.N.M. Staritschka Island.  
In 300 fathoms. Albatross Station 4797.  
June 20, 1906. Length 60 mm.

77461 U.S.N.M.

Albatross Station 4393.  
Length 190 mm.

1904.

77462 U.S.N.M.

Albatross Station 4515.  
Length 152 mm.

1904.

77463 U.S.N.M.

Albatross Station 4544.

Length 100 mm.

51464 U.S.N.M. Sagami Bay, Japan.

In 120 to 265 fathoms. Albatross

Station 3697. Length 196 mm. Type  
of Chauliodus emmelas.

Chauliodus danae Regan and Trewavas

Chauliodus danae Regan and Trewavas,

Danish Dana Exped. Oceanogr. Rep.,

No. 5, May 30, 1929, p. 34, pl. 7. Atlantic,

Caribbean Sea, Indian Ocean, south of

New Guinea, north of New Guinea, 50 to

7000 meters.—Hornマン, Discovery Rep.,

vol. 2, 1930, p. 308 ( $S. 32^{\circ}$  to  $33^{\circ}$  W.  $8^{\circ}$  to

E.  $6^{\circ}$  to  $9^{\circ}$ ; 650 to 1000 meters).

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Depth  $6\frac{2}{5}$ ?; head  $4\frac{3}{4}$ ? width  
 $3\frac{2}{3}$ ? Snout 6? in head from  
snout tip; eye  $4\frac{2}{3}$ ?, greater than  
snout or interorbital; maxillary  
reaches preopercle ridge,  $1\frac{1}{8}$ ? in head  
from snout tip; 4 pairs of upper  
canines and 8 lower pairs; interorbital  
 $4\frac{3}{4}$ ? in head, level in front and  
abruptly declivous behind well as  
concave medially. Gill rakers?

Scales all fallen and pockets  
scarcely defined, about 43 in  
median lateral series to caudal base.

Large antorbital photophore distinct  
at lower front eye edge, though

only about 8 or 10 feeble impressions  
of the infraorbital crescentic rim  
of minute photophores; large  
photophore above maxillary opposite  
eye center; upper lateral series  
with 16 between pectoral and ventral  
fin, 22 between ventral and anal,  
thence 9 to caudal.

D. 5, first ray long and  
filamentous or  $2\frac{3}{4}$  in combined  
head and body to caudal base;  
adipose fin not defined anteriorly  
but apparently would begin at  
least opposite anal origin,  
posteriorly not extended far as

hind anal edge; A<sub>II</sub>, 10, first branched ray 3 in head from snout tip; caudal  $1\frac{1}{2}$ ; forked, lobes sharply pointed; least depth of caudal peduncle  $1\frac{2}{3}$  in eye; pectoral  $1\frac{1}{2}$  in head from snout tip; ventral 1.

Brownish, upper and lower margins of body blackish, also body at fin bases. Twelve dark ill-defined cross bands, about wide as pale interspaces. Fins whitish. Iris gray.

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89914 U. S. N. M. N.  $37^{\circ}$  W.  $67^{\circ} 12'$ .

In 1500 meters. October 13, 1913.

C. O'D. Iselin. Museum of Comparative  
Zoology. Length 70? mm.

Chauliodus barbatus Garman

Chauliodus barbatus Garman, Mem. Mus.

Comp. Zool., vol. 24, 1899, p. 271, pl. K, figs.

2 - 2a.  $N. 6^{\circ} 22' 20'' W. 81^{\circ} 52'$ , 465 fathoms;

$N. 2^{\circ} 34' W. 82^{\circ} 29'$ , 1201 fathoms;  $N. 3^{\circ} 9' W. 82^{\circ}$

8', 1132 fathoms. — Brauer, Deutsch. Tiefsee  
Exped. Valdivia, vol. 15, Tiefsee - Fische,

1906, p. 40 (diagnosis in key). — Regan

and Trewavas, Danish Dana Exped.

Oceanogr. Rep., no. 5, May 30, 1929, p. 38

(Gulf of Panama, 1500 to 3500 meters).

Polymetme illustris McCulloch  
Polymetme illustris McCulloch, Biol.  
Results Endeavour, vol. 5, pt. 4, June 8,  
1926, p. 167, pl. 45, fig. 1. Great Australian  
Bight in E. Long.  $127^{\circ} 40'$ ; south west of  
Eucla, in 200 fathoms; south of Gabo  
Island, Victoria, in 200 fathoms.